BROOKHAVEN NATIONAL LABORATORY

Work Permit # SS2003-026

Work Order # _____

Job # _____ Activity # _____

1. Work requester fills out this section.

☐ Standing Work Permit

Requester THOMAS SHEA Date: 4/14/03 Ext. 3454 Dept/Div/Group: PO/CA

Other Contact person (if different from requester): _____ Ext. _____

Work Control Coordinator THOMAS SHEA Start Date 4/16/03 Est. End Date 4/17/03

Brief Description of Work: REPAIR DRIFT CHAMBER WIRES IN EAST CYLINDER

- SEE ATTACHMENT.

Building 1008 Room I2 Equipment HAND TOOLS Service Provider _____

2. WCC, Requester/Designee, Service Provider, and ES&H (as necessary) fill out this section or attach analysis.

ES&H ANALYSIS

Radiation Concerns ☒ None ☐ Activation ☐ Airborne ☐ Contamination ☐ Radiation ☐ Other _____

☐ Special nuclear materials involved, notify Isotope Special Materials Group ☐ Fissionable materials involved, notify Laboratory Criticality Officer

Safety Concerns

☐ None	☐ Ergonomics	☐ Transport of Haz/Rad Material		
☐ Adding/Removing Walls or Roofs	☐ Confined Space*	☐ Explosives	☐ Lead*	☐ Penetrating Fire Walls
☐ Asbestos*	☐ Corrosive	☐ Flammable	☐ Magnetic Field*	☐ Pressurized Systems
☐ Beryllium*	☐ Cryogenic	☐ Fumes/Mist/Dust*	☐ Material Handling	☐ Rigging/Critical Lift
☐ Biohazard*	☐ Electrical	☐ Heat/Cold Stress	☐ Noise*	☐ Toxic Materials*
☐ Chemicals*	☒ Elevated Work*	☐ Hydraulic	☐ Non-ionizing Radiation*	☐ Vacuum
	☐ Excavation	☐ Lasers*	☐ Oxygen Deficiency*	☐ Other _____

*Does this work require medical clearance or surveillance from the Occupational Medicine Clinic? ☐ Yes ☒ No

Environmental Concerns

☒ None	☐ Work impacts Environmental Permit No. _____		
☐ Atmospheric Discharges (rad/non-rad)	☐ Land Use	☐ Soil activation/contamination	☐ Waste-Mixed
☐ Chemical or Rad Material Storage or Use	☐ Liquid Discharges	☐ Waste-Clean	☐ Waste-Radioactive
☐ Cesspools (UIC)	☑ Oil/PCB Management	☐ Waste-Hazardous	☐ Waste-Regulated Medical
☐ High water/power consumption	☐ Spill potential	☐ Waste-Industrial	☐ Underground Duct/Piping

Waste disposition by: Bo-Cui Sepeni ☐ Other _____

Pollution Prevention (P2) / Waste Minimization Opportunity: ☐ None ☐ Yes NOT APPLICABLE T.K.

FACILITY CONCERNS ☒ None

☐ Access/Egress Limitations	☐ Electrical Noise	☐ Potential to Cause a False Alarm	☐ Vibrations
☐ Configuration Control	☐ Impacts Facility Use Agreement	☐ Temperature Change	☐ Other _____
	☐ Maintenance Work on Ventilation Systems	☐ Utility Interruptions	

WORK CONTROLS

Work Practices

☑ None	☐ Exhaust Ventilation	☐ Lockout/Tagout	☐ Spill Containment	☐ Other _____
☐ Back-up Person/Watch	☐ HP Coverage	☐ Posting/Warning Signs	☐ Time Limitation	
☐ Barricades	☐ IH Survey	☐ Scaffolding-requires inspection	☐ Warning Alarm (i.e."high level")	

Protective Equipment

☒ None	☐ Ear Plugs	☒ Gloves	☐ Lab Coat	☐ Safety Glasses	
☐ Coveralls	☐ Ear Muffs	☐ Goggles	☐ Respirator	☐ Safety Harness	
☐ Disposable Clothing	☐ Face Shield	☐ Hard Hat	☐ Shoe Covers	☐ Safety Shoes	☐ Other _____

Permits Required Permits must be valid when job is scheduled.

☒ None	☐ Cutting/Welding	☐ Impair Fire Protection Systems
☐ Concrete/Masonry Penetration	☐ Digging/Core Drilling	☐ Rad Work Permit-RWP No. _____
☐ Confined Space Entry	☐ Electrical Working Hot	☐ Other _____

Dosimetry/Monitoring

☒ None	☐ Heat Stress Monitor	☐ Real Time Monitor	☐ TLD
☐ Air Effluent	☐ Noise Survey/Dosimeter	☐ Self-reading Pencil Dosimeter	☐ Waste Characterization
☐ Ground Water	☐ O_2/Combustible Gas	☐ Self-reading Digital Dosimeter	☐ Other _____
☐ Liquid Effluent	☐ Passive Vapor Monitor	☐ Sorbent Tube/Filter Pump	

Training Requirements (List below specific training requirements) WORK AT HEIGHTS.

Based on analysis above, the Walkdown Team determines the risk, complexity, and coordination ratings below.

ES&H Risk Level:	☐ Low	☒ Moderate	☐ High
Complexity Level:	☐ Low	☒ Moderate	☐ High
Work Coordination:	☐ Low	☑ Moderate	☐ High

If using the permit when all hazard ratings are low, only the following need to sign:

_____ WCC _____ DATE

_____ Service Provider _____ DATE

Authorization to start _____ Departmental Sup/WCC/Designee _____ DATE

No need to use the back side of form.

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3. Both work requester and service provider coordinate on work plan (use attachments for detailed plans)

Work Plan (procedures, timing, equipment, and personnel availability need to be addressed) SEE ATTACHMENT

Special Working Conditions Required:

Operational Limits Imposed: LIMIT CRANE HOOK TRAVEL TO AREA DESCRIBED IN ATTACHME...
Post Work Testing Required:
Job Safety Analysis Required: ☐ Yes ☑ No Walkdown Required: ☐ Yes ☑ No

Reviewed by: Primary Reviewer will determine the size of the review team and the other signatures required based on hazards and job complexity. Primary Reviewer signature means that the hazards and risks that could impact ES&H have been identified and will be controlled according to BNL requirements.

Title	Name (print)	Signature	Life #	Date
Primary Reviewer	Arthur J. Pepper		18661	4/16/03
ES&H Professional	[illegible]		21867	4/16/03
Other	[illegible]		15245	4/16/2003
Other				
Work Control Coordinator	THOMAS SHEA		20208	4/16/03
Service Provider				

Review done: ☑ in series ☐ team

4. Job site personnel fills out this section.

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements (including attached permits).

Job Supervisor Sal Marino 15767 Contractor Supervisor

Workers	Life #	Workers	Life #
John Ibdeski	15123	Jim LaBounty	18643
Ken Jones	20135		

Workers are encouraged to provide feedback on ES&H concerns or on ideas for improved job work flow. Use feedback form or space below.

5. Departmental Job Supervisor, Work Control Coordinator/Designee

Conditions are appropriate to start work: (Permit has been reviewed, work controls are in place and site is ready for job.)

Name T. Shea Signature Life # 20208 Date 4/16/03

6. Departmental Job Supervisor, Work Requester/Designee determines if Post Job Review is required. ☑ No ☐ Yes

Post Job Review (Fill in names of reviewers)

Name Signature Life # Date
Name Signature Life # Date

7. Worker provides feedback.

Worker Feedback (use an attached sheet if necessary)

8. Work Control Coordinator (authorizing dept.) checks quality of completed permit and ensures the work site is left in an acceptable condition.

Closeout
Name THOMAS SHEA Signature Life # 20208 Date 4/21/03
Comments WORK COMPLETED ACCORDING TO THE PLAN

Attachment to Work Permit No. SS2003-026 Dated 4/16/03

Description of work.

Repair the East Drift Chamber (DC) by cutting a slit in the upstream window, inspecting the interior, and, if necessary, removing any broken wires found. Reseal the window, and leak testing the gas volume. Work requires deflation of the helium bags, purging the DC of flammable gas, securing High and low voltage. Also modification the of the existing hydraulic lift table in the Central Magnet (CM) by installation of an extension to the table top, and installation of support bars between the CM poles at the location of the defect.

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Work Plan

Preparation work done by PHENIX technical staff:

1 - Purge flammable gas from the East and West Drift Chambers with at least six volume exchanges of an inert gas. This is expected to take thirty six hours. The repair work is planed to start at 0900 Wednesday morning so the purge must start by 0900 Monday evening.
2 - Deflate the East helium bag and secure the lower section out of the way. It may be necessary to partially deflate the West bag to allow it to clear the lift table when fully extended.
3 - Lock out the CM at the PHENIX control room key tree.
4 - Install an 8 foot by 28 inch stage platform, with guard rails to the platform on the hydraulic lift table. This is to be done by the PHENIX technical staff.
5 - From the lift table, install the support bars to the shield ring of the CM.
6 - Rig lighting adequate to support the repair work.

Repair done by subsystem personnel

7 - Cut a slit in the DC window, effect the repair, and reseal the slit by applying kapton tape using the established method.
8 - If the table extension has to be repositioned during the repair it must be done by the PHENIX technical staff.
9 - Leak test the chamber.

Close up work done by PHENIX technical staff

10 - Remove the support bars and the stage platform.
11 - Refill the He bags if desired by the shift.
12 - Sweep the area in and around the CM for magnetic hazards.